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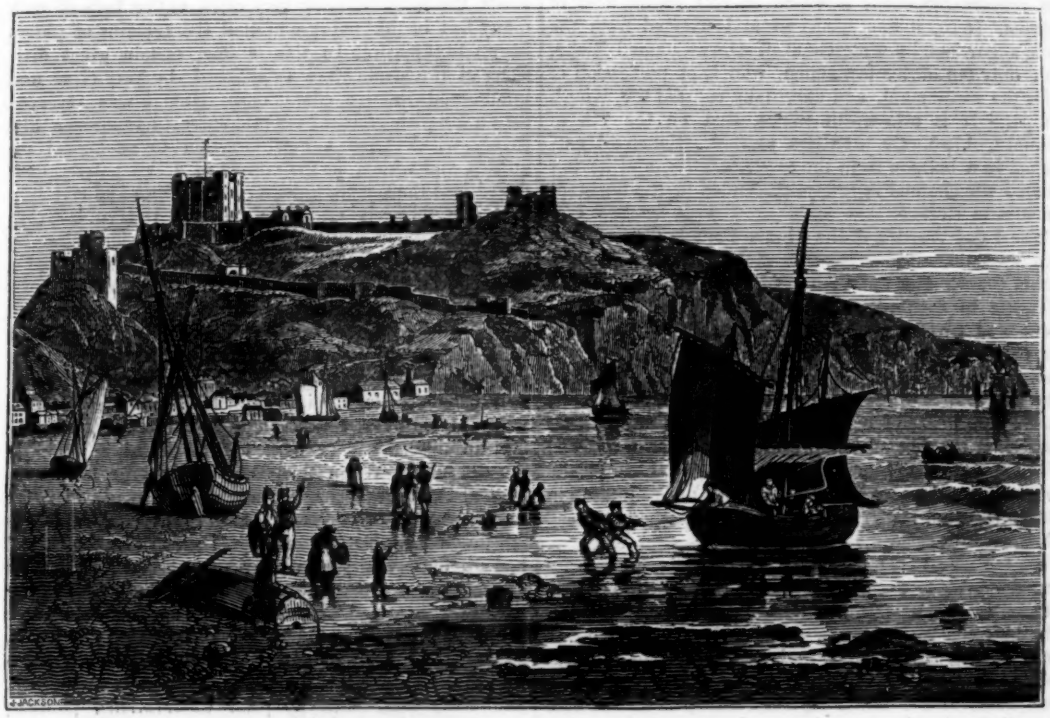
DOVER CASTLE.



[Dover Castle, from the Beach under Shakspeare's Cliff.]

AT the south-eastern corner of England, upon the summit of a chalk cliff from 350 to 400 feet in height, and at the distance of about twenty-one miles from the opposite coast of France, stands Dover Castle. The town of Dover has been built to the west of, and immediately below it. The antiquity of the castle very far exceeds that of the town; and all that the latter contains worthy of remark is of modern date. It is, however, generally known as the key to the Continent, and as possessing a very complete artificial harbour. The coasts of Sussex and Kent, as well as the opposite coast of France, are without natural harbours; but as a proof how far art has supplied this want, the harbours of Dover and Ramsgate, among others, may be referred to with just pride.

The fortifications of the castle are of different epochs, Roman, Saxon, Norman, and of later date. The watch-tower (an octagonal building), the parapet, the peculiar form of the ditch, all exhibit the hand of the Roman architect; and there is no doubt that the Romans had here one of their stationary posts, or walled encampments. The foundations of the watch-tower are laid in a bed of clay, which was a usual practice with the Roman masons; and it is built with a stalactical composition instead of stone, intermixed with courses of Roman tiles. The watch-tower and the ancient church are the only remaining buildings within the Roman fortress. What the precise origin of this church was is not known, but it was consecrated to Christian worship by St. Augustine when he was in England in the sixth century.

The Saxons extended the groundwork of the Roman fortress, and erected a fortress differing materially from that of the Romans, as it consisted merely of perpendicular sides without parapets, surrounded by deep ditches. In the centre of the old Saxon works is the keep, which is, however, of Roman origin, the foundation having been laid in 1153. It is a massy square edifice, the side on the south-west being 103 feet; that on the north-west 108 feet; and the other two 123 feet each. The north turret of the keep is 95 feet above the ground, which is 373 feet above the level of the sea. The view from it, in a clear day, comprises the North Foreland, Ramsgate pier, the Isle of Thanet, the valley of Dover, and the towns of Calais and Boulogne, with the intermediate French coast. The rest of the fortifications are, for the most part, of Roman origin, but present the altered and improved appearance which has been given them by a succession of repairs for a course of centuries.

During the French Revolution it was considered important to secure and defend Dover Castle as a military station. Fifty thousand pounds were voted for this purpose; and miners and other labourers were employed to excavate the rock for purposes of defence, and to cast up additional mounds and ramparts. Extensive barracks were excavated in the solid rock, by which accommodations were provided for a garrison of three or four thousand men. The subterraneous rooms and passages are shown to visitors, upon an order of the military commandant being obtained. There is an armoury in the keep; and many ancient curiosities are to be seen here, among which is Queen Elizabeth's pocket-pistol, a beau-

tiful piece of brass ordnance presented to Elizabeth by the States of Holland, as a token of respect for the assistance she afforded them against Spain. It is twenty-four feet long, and bears a Dutch inscription, of which the following is a translation :—

> " O'er hill and dale I throw my ball;
> Breaker, my name, of mound and wall."

In Lyon's History of Dover, in two volumes quarto, or in a smaller work published by William Batcheller at Dover, may be found the detailed history of this castle, one remarkable event in which is, that on the 21st of August, 1625, it was surprised and wrested from the King's garrison by a merchant of Dover, named Blake, with only ten of his townsmen, who kept possession of it for the Parliament, and effectually resisted the King's troops. It is also worth notice, that on the 7th of January, 1785, Dr. Jefferies and M. Blanchard embarked in a balloon from the castle heights, and having crossed the channel in safety, descended in the forest of Guisnes in France.

The Lord Warden of the Cinque Ports is Constable of Dover Castle, and has the execution of the King's writs within the Cinque Ports—a jurisdiction extending from Margate to Seaford, independently of the sheriffs of Kent and Sussex. The castle contains a prison used for debtors and smugglers; and the keeper has the feudal designation of Bodar, under the Lord Warden. The courts of Chancery, Admiralty, &c., for the Cinque Ports, are held by the Lord Warden in St. James's church, at the foot of the castle-hill. The office of Lord Warden has been usually given to the first Lord of the Treasury, and is now held by the Duke of Wellington in consequence of his grace having been such first Lord when the office became vacant.

To the west of Dover, opposite the castle, is the celebrated Shakspeare cliff, described in the tragedy of King Lear. It is 350 feet high, and almost perpendicular. The late Sir Walter Scott, when at Dover a few years since on his road to Paris, said to a gentleman who was speaking to him of this cliff: " Shakspeare was a lowland man, and I am a highland man; it is therefore natural that he should make much more of this chalk cliff than I can do, who live among the black mountains of Scotland." The fact is that the cliff is remarkable for its form, but is by no means so awful or majestic as might be supposed, after reading King Lear.

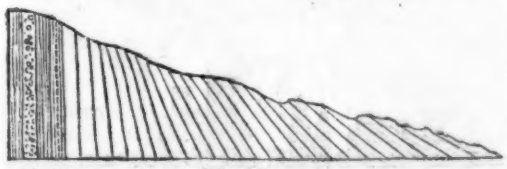
MINERAL KINGDOM.—SECTION 3.

THE means by which geologists have been enabled to fix the order of superposition in the strata composing the crust of the globe have been, partly by the mineral composition of each member of the series, partly by their containing fragments of other rocks, but chiefly from the remains of animals and plants that are imbedded in them. It was observed that there was a class of rocks distinguished by a considerable degree of hardness, by closeness of texture, by their arrangement in slaty beds, and by possessing, when in thick masses, a glistening structure called crystalline by mineralogists, and of which statuary marble or loaf sugar may be quoted as familiar examples: when associated with rocks of another sort, also, they always were lowest.—These are marked R in the diagram, No. 1. Above and in contact with them another group of strata was observed, which had a good deal of resemblance to those below them in mineral composition, but contained rounded fragments of other rocks, and when these fragments were examined they were found to be identical with the rocks composing the lower strata. This second series was observed to be covered by another group of strata which contained shells and corals, bodies that had never been seen in any of the lower strata. Thus it was clear, as the including substance must necessarily be formed subsequently to the pebble or shell it contains, that previous to the formation of this third group there had existed rocks to supply the imbedded fragments, and to contain the waters of the ocean in which the animals that once inhabited the shells must have lived. Ascending still higher, that is, observing the strata as they lay one above another towards the surface, it was found that many were entirely composed of the fragments of pre-existing rocks either in the form of pebbles or of sand cemented together; that there was a vast increase in the number and variety of the imbedded shells, the latter forming very often entire beds of rock many feet in thickness; and that the remains of plants began to appear. In this manner certain great divisions of the strata were established, by very clear and infallible distinctive characters. But it was reserved for an English practical mineral surveyor to make a discovery which gave a new direction to geological inquiries, and which, in the course of a few years, introduced into the science a degree of precision and certainty that was formerly unknown. About thirty-five years ago, Mr. William Smith, of Churchill in Oxfordshire, by an extensive series of observations in different parts of England, ascertained that particular strata were characterized by the presence of certain fossil or petrified shells, which were either confined exclusively to them or in predominating quantity, or were of rare occurrence in other strata; and he was thus enabled to identify two rocks at distant points as belonging to one stratum, when mere mineral characters would either have left him in uncertainty or have entirely failed in deciding the question. When this discovery became known to geologists, numerous observations were made in other countries, which completely proved that the principle was not only applicable in those places which Mr. Smith had had an opportunity of observing, but that it held good generally, and throughout the whole series of strata from the lowest in which organic remains are found to those nearest the surface. Under the direction of this guide, geologists have been enabled to discover lines of separation in the great divisions which, as already mentioned, had been established by prior observations, pointing out distinct epochs of deposition, and revealing a succession of changes in the organic and inorganic creation, in a determinate chronological order. This more accurate knowledge of the structure of the crust of the globe is of the highest interest and importance; not only as a matter of speculative science, but as regards the practical advantages in common life that have been derived from it. Some of the more remarkable results we shall presently advert to; but we must proceed, in the first instance, to describe other parts of that structure.

An examination of the phenomena exhibited by the internal structure of this series of superimposed rocks has established this farther principle—that all the strata must have been deposited on a level foundation,—that is, on pre-existing ground that was either horizontal or nearly so, at the bottom of a fluid holding their materials either in suspension or in solution, or partly both. Now as we know of no fluid in which this could have taken place except water, geologists have come to the conclusion that the chief part of all the strata, however elevated they may now be above the level of the sea, were gradually deposited at the bottom of the ocean, and the remainder of them at the bottom of inland seas or lakes. But if this be so, what mighty revolutions must have taken place to cause rocks formed in the depths of the ocean to occupy the summits of the highest mountains! By what known agency can so extraordinary a change of position have been effected! That the fact of elevation is indisputable, is proved by the shells imbedded in stratified rocks at the greatest elevations; and geologists who have endeavoured to discover by what cause this change in the relative position of the rock and the sea has been brought

about, by an attentive observation of the phenomena of earthquakes and volcanoes, and the resemblance between the products of the latter and certain parts of the earth's structure which we have yet to notice, have arrived at a very probable solution of the problem.

Although the strata were originally deposited in a horizontal position, and are often found so in the greater proportion of cases, especially as regards the inferior members of the series represented in diagram No. 1, Section 2, they are not uniformly so, but are inclined more or less, and they have been seen not only at every angle of inclination, but very often in a vertical position. When a vertical section of a mountain is exposed, as is often the case in valleys or the deep bed of a river, such an appearance as that represented in diagram No. 2, is not uncommon; and if the stratum *a* be composed



(*a*) (*b*) [No. 2.]

of rounded blocks of stone surrounded by fine sand or clay, and if the stratum *b* contain a layer of shells lying parallel to the sides of the stratum, and if they be unbroken although of the most delicate texture, it is manifest that these strata could not have been deposited in their present vertical position, but upon a level ground. Sometimes they are not only disturbed from their horizontality, but are bent and contorted in the most extraordinary way, as if they had been acted upon by some powerful force while they were yet in a soft flexible state, as shown in the diagram No. 3,—an ap-

[No. 3.]

pearance very common in the slate rocks of the north coast of Devon. This seeming disorder and confusion is evidently a part of the order and harmony of the universe, a proof of design in the structure of the globe, and one of the progressive steps by which the earth seems to have been prepared as a fit habitation for man. For if all the strata had remained horizontal, that is, parallel to the surface of the globe, if they had enveloped it like a shell, or, to use a familiar example, had they surrounded it like the coats of an onion, it is clear that we should never have become acquainted with any other than the upper members of the series, and that the beds of coal and salt, and the ores of the metals, all of which are confined to the inferior strata, could never have been made available for the purposes of man. Without this elevation of the strata the earth would have presented a monotonous plain, unbroken by the beautiful forms of hill and valley or the majestic scenery of mountains. With these inequalities of the surface are intimately connected all the varieties of climates, and the diversified products of animal and vegetable life dependent thereon; as well as the whole of what may be termed the aqueous machinery of the land, the fertilizing and refreshing rains, the sources of springs, inland lakes, and the courses of rivers and brooks in their endless ramifications. Throughout all this there reigns such a harmony of purpose, that the conclusion is irresistible, that the breaking up of the earth's crust is not an irregular disturbance, but a work of design, in perfect accordance with the whole economy of nature.

We have said that if we dig through the superficial covering of sand and clay we usually come upon stone disposed in layers; but there are many places where we should find a rock without any such arrangement, and which would continue of the same uniform texture, and without any parallel rents dividing it into beds, however deeply we might penetrate into it. Such *unstratified rocks*, although of limited extent in proportion to the *stratified rocks*, constitute a considerable portion of the crust of the earth, and in all parts of it they generally rise above the surface in huge unshapen masses, surrounded by the stratified rocks; and sometimes they occupy districts of great extent where none of the latter rocks can be seen. In mineral composition they are essentially different from the other class; never consisting of limestone, or sandstone, or clay, and never containing rounded pebbles, shells, or the remains of any other kind of organized matter. Their elementary constituent parts are simple mineral substances, which, although sometimes found in the stratified rocks, are always in the rocks we now speak of, in different combinations: they are always in that particular state called crystalline; and when the parts are large enough to be distinguished they are seen to interlace each other, and by this arrangement they form a very hard tough stone, very difficult to break into regular squared forms or to work with the chisel, and they are capable of receiving very often a high polish. The substances most familiar to us in common life which belong to this class of rocks, are granite, whinstone, and basalt. The stones in the carriage-ways, and the curb-stones of the side-pavement, in the streets of London are usually granite; Waterloo Bridge is built of it; and fine specimens of different varieties may be seen in the new buildings in Covent Garden Market, in the King's Library at the British Museum, and among the larger Egyptian antiquities at the latter place. Granite is found in great abundance in the Grampians and other mountains of Scotland, in Devonshire in the mountainous district of Dartmoor, and in several parts of Cornwall. There are various kinds of *whinstone*, which is a term chiefly used in Scotland and the north of England, although the rock is met with in Wales and in the centre and western parts of England. The varieties, however, are usually produced by changes in the proportions and sizes of the same ingredients. It is usually of a dark green colour approaching to black, and often speckled with white. Some of the paving-stones of the carriage-ways in the streets of London are whinstone, brought from the neighbourhood of Edinburgh. It is often met with in the form of natural pillars, not round but angular, having sometimes three, sometimes six, and even eight sides, which are usually called *basaltic columns*: the Giant's Causeway in Ireland, and Fingal's Cave in the island of Staffa, on the west coast of Scotland, are beautiful examples of that peculiar structure.

In our next section we shall proceed to show that these unstratified rocks have acted a very conspicuous part in the various changes which the crust of the earth has undergone.

GUSTAVUS THE GREAT OF SWEDEN.

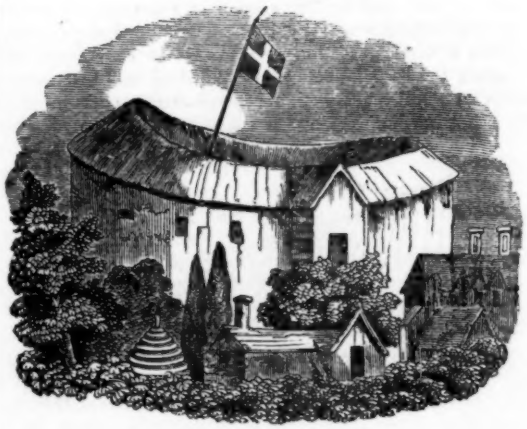
THE following account is from materials given in the Travels of Schubert, a German, in Sweden and Norway. It relates to some of the personal adventures of Gustavus Erickson Vasa, a Swede of noble family; whom Christian II. of Denmark, then the oppressor of Sweden, had carried off to Denmark, contrary to his word. Gustavus soon made his escape to Sweden, and this was the commencement of a revolution for his native country.

About a quarter of a mile (German) beyond Dalsjö, a short distance from the road and to the right, on a point of land projecting into the great lake Runn, stands the building which is noted for having been the residence of

Gustavus I. in 1520. A beautiful walk leads to it, and delightful valleys covered with shrubs lie all around the lake. The wooden house in which Gustavus was concealed when the owner Arendt Pehrsson Ornflyckt betrayed him, and the traitor's wife, Barbara Stigsdotter, saved him, is still maintained in the same condition that it was in the time of Gustavus, and has lately had a new roof. The crown allows a fixed sum to the proprietor for the maintenance of this house, which shows the simplicity of its former inhabitants. Like the farmhouses of Switzerland, it is surrounded by a covered balcony which is ascended by a flight of steps: this balcony forms the entrance to the house. In the wardrobe, where Gustavus was concealed, which is a room with very small windows, there is a wooden statue of Gustavus in his royal robes, resting on the Bible, which he caused to be translated and published at Upsal, in 1541. In one hand he holds a telescope. On the table on which the Bible lies we see his gloves, which are iron on the outside and leather on the inside, his iron gorget and helmet; and on the mantel of the window his brass watch. On the walls are suspended his coat of mail made of brass wire, his dagger, and his cross-bow, with the pedigree of the family of Gustavus, the portraits of the Swedish kings of this family, and a map of Dalarne (Dalecarlia). Over the entrance are some verses which remind the visitor with what feelings he ought to approach this national sanctuary; and near it three standing figures, one the body servant of Gustavus with arrow and lance, and the two others Dalecarlian peasants armed with cross-bow and quiver, in a white dress and peaked hats, which are now no longer in fashion. Some simple verses over these figures relate their patriotic deeds. Other verses tell, in chronological order, the most remarkable events in the life of Gustavus; they say how Gustavus fled in 1520 to Dalecarlia, and how Pehrsson and his wife kindly received him. But Pehrsson soon went to his brother-in-law, who held an office under King Christian, to concert with him about making Gustavus prisoner. His honest wife, however, saved the fugitive: she let him down from the window by some towels, and Jacob (one of the Dalecarlian peasants just alluded to) took him with all possible speed over lake Runn to the house of Pastor John. Though John had been a friend of Gustavus at the university, he did not make himself known till he had worked at threshing corn with the servants for some time, and had found out by inquiry John's feelings towards *Gustavus Erickson*. After this he only stayed three days with John, being closely pursued by his enemies; and he fled to the house of Sven Elfsson, an honest farmer, where he stayed till spring. But even in this obscure retreat his enemies followed him, and once actually entered the room where Gustavus was standing and warming himself at the fire. Sven's wife, who was baking bread, observing that the eyes of the Danes were steadily directed on the strange young man, immediately struck Gustavus with her bread-shovel, exclaiming, in angry tone, "Why stand you here gaping on the strangers? did you never see a man before? off to the barn!"—Gustavus went off to his threshing. From this hospitable retreat Sven took him in a waggon filled with straw, under which he was hid, to Marnas, over bridges and through passes occupied by the Danes, who stuck their daggers and pikes into the waggon, and wounded Gustavus. But the pain could not make him utter a single syllable; and he was saved by his own fortitude, added to the dexterity of the driver, who wounded the horse, and thus led the Danes to believe that the blood on the ground came from the animal. From Marnas, Gustavus was secretly conveyed to a forest on the river Lungsjo, where a decaying pine-tree afforded him shelter for three days. He was supplied with food from Marnas. As soon as it could be effected without danger, his two friends at Marnas, named Olson, took him to Gardsjo, where he stayed for some time concealed in a cellar near the church. Here, at last, he showed himself, and, in an inspiriting address, urged the people to war. The Danes appeared, but the peasants sounded the alarum-bell, and the Danes with difficulty made their escape.

After a short time the war commenced, which ended in seating Gustavus on the throne of Sweden.

GLOBE THEATRE.



[Globe Theatre, Bankside.]

THE above wood-cut exhibits the Globe Theatre, previous to its conflagration in 1613; it is taken from the 'View of London as it appeared in 1599.' The Globe, which was converted from a bear-garden into a theatre about the year 1590, stood nearly opposite the end of Queen-street, Cheapside, and was a hexagonal building of wood, partly open at the top, partly thatched with reeds. The performances took place by day-light, and during the time of playing a flag was displayed on the roof. About 1596, the proprietors, of whom Shakspeare became subsequently one, had the old edifice pulled down, and a more commodious theatre erected.

On the 29th June, 1613, the new house was entirely destroyed by fire. The performers were representing Shakspeare's play of Henry VIII., and on the King's entrance in the masquerade some cannon were discharged, the wadding from which set fire to the thatch. In the following year it was rebuilt with more splendour than it before could boast of, and is mentioned by Taylor the poet, in the following lines:—

> "As gold is better that's in fire tried,
> So is the Bankside Globe that late was burned,
> For where before it had a thatched hide
> Now to a stately theatre is turned:
> Which is an emblem that great things are won
> By those who dare through greatest dangers run."

Performances were probably continued at this theatre till the year 1642, when the Parliament issued an order for suppressing all theatrical representations. Its site is now occupied by Barclay and Perkins's brewery, formerly the property of Mr. Thrale.

Singular Rocks.—A rock near the island of Corfu bore, and still bears, the resemblance of a vessel under sail: the ancients adapted the story to the phenomenon, and recognised in it the Phæacian ship in which Ulysses returned to his country, converted into stone by Neptune for having carried the slayer of his son Polyphemus. A more extensive acquaintance with the ocean has shown that this appearance is not unique: a similar one on the coast of Patagonia has more than once deceived both French and English navigators; and Captain Hardy, in his Travels in Mexico, has recorded another near the shores of California.—*Foreign Review.*

THE BAMBOO.

The bamboo is a native of the hottest regions of Asia. It is likewise to be found in America, but not in that abundance with which it flourishes in the old world. It is never brought into this country in sufficient supply for any useful purposes, being rather an object of curiosity than of utility. But in the countries of its production it is one of the most universally useful plants. "There are about fifty varieties," says Mr. Loudon, in his Botanical Dictionary, "of the *Arundo bambos*, each of the most rapid growth, rising from fifty to eighty feet the first year, and the second perfecting its timber in hardness and elasticity. It grows in stools which are cut every two years. The quantity of timber furnished by an acre of bamboos is immense. Its uses are almost without end. In building it forms almost entire houses for the lower orders, and enters both into the construction and furniture of those of the higher class. Bridges, boats, masts, rigging, agricultural and other implements and machinery; carts, baskets, ropes, nets, sail-cloth, cups, pitchers, troughs, pipes for conveying water, pumps, fences for gardens and fields, &c. are made of it. Macerated in water it forms paper; the leaves are generally put round the tea sent to Europe: the thick inspissated juice is a favourite medicine. It is said to be indestructible by fire, to resist acids, and, by fusion with alkali, to form a transparent permanent glass."

WANDERING ITALIANS.—No. 2.

The emigrants from the North of Italy are far more numerous, and generally engaged in more respectable or more important pursuits, than the poor peasants of the Apennines, of whom we gave an account in a preceding number. These Northern Italians come principally, as we have mentioned, from the lakes of Upper Italy, and the valleys and declivities of the Alps. The same curious practice obtains here as in the Apennines, and on a larger scale—that is, each district embraces a particular calling, and never interferes with that of its neighbours. For generation after generation, one place has sent forth venders of barometers, &c.; another place, innkeepers and servants for inns; another, stone-cutters; another, house-painters and white-washers; another, masons and architects, and so on. We will begin with those from the lake of Como, the class of emigrants most frequently found in England, and, perhaps, the most intellectual and important of the whole.

The large and beautiful lake of Como is principally fed by the waters and melting snow of the neighbouring Alps, and is almost entirely surrounded by lofty and very steep mountains that are picturesque to the eye rather than productive to the poor inhabitants. In their best parts, the superior region of these mountains offers woods and pastures, the middle region an abundance of chesnut trees, and the lower declivities bear vines, mulberry trees, a few olives, and vegetables. Corn is grown in some places, and rye in others; but frequently under circumstances of great difficulty, requiring infinite labour and ingenuity. The bear, the wolf, the chamois, the white hare, the marmot, and other wild animals are found on these mountains; whose sides, like those of the Apennines, are frequently swept by tremendous hurricanes, which throw down the walls built to retain the soil, carry away the earth and its produce, and destroy the labours of years. Hard, however, as is the struggle of man with nature, population has gone on increasing in these parts, and the number of towns and villages is very considerable. Many of these, as seen from the level of the lake, present the most striking and picturesque appearances imaginable. The inhabitants of these places have devoted themselves principally to the manufacture of barometers, thermometers, and other useful instruments, which have at different periods originated in philosophical discoveries and improvements in the knowledge of physics. These simple mountaineers have shown a remarkable degree of intelligence in these matters, and an aptitude to comprehend and imitate machines and instruments used in the natural sciences, as soon as they have been invented. With this branch of industry they not merely emigrate to all parts of Italy, but to France, England, Germany, Russia—to every part of Europe—whilst some have even crossed the Atlantic both to North and South America. Like the manufacturers of plaster figures from Lucca, these barometer-makers from the lake of Como can find the simple materials employed in the construction of their wares in most of the towns or great cities whither they may go. Generally, however, of late years, in England and the more civilized portions of Europe, they have opened shops in places where they have settled for longer or shorter periods. But the number of those who have relinquished their own country, and made a permanent settlement in England and elsewhere, is remarkably small. The attachment to their mountain homes is as strong in the breasts of the wanderers from Como as we have described it in the poor peasants from the Apennines, and their scope and ambition are the same—to return to the scenes of their birth, to become the owners of a little estate, and to build a house of their own. We must remind the reader (a circumstance, however, that will probably strike him from what has been said), that as the speculations of the Comaschi (people of Como) are more important than those of the leaders of bears, and showers of monkeys and white mice, much more money is carried back to the mountains round the lake of Como than to the Apennines. The effect of this is seen in the superiority in the style and condition of their houses, gardens, and lands. The major part of the capital thus obtained by foreign trade is invested in agriculture and in rendering productive the naturally rude or difficult uneven soil they inhabit. Their grounds could be preserved and made fruitful only by excessive care; their gardens are cultivated with much neatness, and the luxuriant vine is made to climb over the snow-white walls of their pleasant homes, or is suspended over trellices to form a verdant avenue to their doors. The general practice with those who have made their little fortunes abroad, is to leave their sons, or to invite from Italy some near relative or family connexion to come and take possession of their

shop and trade; and when this is done, and the new occupants sufficiently instructed how to proceed, the retiring tradesmen take their way back to Como. It is the custom for those who are not at very remote distances from their native country to return home once in two years, and pass the winter with their friends.

It is asserted on good authority that in these emigrating districts, except during the winter, it used to be a common thing to find not more than a tenth part of the male population at home. The women, who are strong and laborious, did the labour of the men in their absence, cultivated the farms, which are not extensive, and with the children tended their herds of goats and their few sheep. After the first French revolution the tide of emigration had somewhat decreased; but since peace has been established on the Continent, and communications re-opened with England, it has gone on increasing. Though not subjected to the miserable privations of the Apennine emigrants, the Comaschi, almost universally, live very soberly, and persevere in a plan of strict economy while abroad. A few years ago there used to be a public-house somewhere in Holborn, frequented on the Saturday night by the men from the lake of Como; and another, near Oxford Street, resorted to by the plaster-figure makers from Lucca. The writer of this article, who had lately returned from Italy, had once the curiosity to go into both these places of rendezvous. He found each party very gay—talking a great deal, but drinking very little; and he was struck, as he had often been before, by their continually-recurring recollections of home, and by the pure Italian spoken by the Lucchesi, and the almost unintelligible jargon of the Comaschi. Before quitting this part of our subject, we may remark that as the wandering Lucchesi, with their cheap plaster casts, have propagated a taste for the fine arts, so have the emigrant Comaschi served to familiarize even the poor and lowly with the discoveries of physics and useful inventions. Penetrating into one country after another, as they have long been doing, they may be considered as retailers and propagators of science. On the other hand, returning home, they have distributed the manufactures of foreign countries through their native mountains; for every time that a Comasco returns to his village, whether it be for good or only for a short visit to see his family and friends, he carries with him a little *paccotiglia* or adventure of wares from the lands in which he has sojourned. In this way our Sheffield and Birmingham manufacturers have been indebted to them; for no articles are more acceptable than English razors, scissors, pocket-knives, &c., and these the Comaschi carry back to their countrymen in considerable quantities. Thus these humble persons in more ways than one advance the civilization of the world.

The next class of northern Italian emigrants we shall notice are those from the Val d'Intelvi—a secluded mountain valley, about eight miles in length, situated between the lake of Como and the neighbouring lake of Lugano. The inhabitants of this district are nearly all builders and masons, architects, and civil engineers. To exercise their professions they regularly emigrate, not merely to all parts of Lombardy and of the Venetian States, but to nearly every state and province in Italy, from the Alps as far the Neapolitan kingdom. Indeed a building of any importance is seldom found in progress in any part of the Peninsula, without a number of these industrious and ingenious emigrants being employed about it. Some of them go into Switzerland, and others seek employment in Germany. They love their homes as much as their neighbours; and, though often prevented by distance and other circumstances arising from their profession, their general object is to return to the Val d'Intelvi every winter. Many of these mountaineers are men of considerable scientific acquirements and excellent practical mathematicians. The Italian portion of the grand road of Mount Simplon, which, of the two, is better made than the French portion, though the difficulties to be overcome on the Italian side were incomparably greater than those on the French, was mainly executed under the superintendence of engineers from the Val d'Intelvi, the lake of Como, &c. Indeed these Italian mountaineers—"*gente nata in aria fina*" (people born in a subtle atmosphere), as their countrymen say of them, are justly celebrated in all Upper Italy for their perspicacity, perseverance, sagacity, and sound judgment; and from them proceed not only the best engineers, but the most distinguished lawyers.

Leaving the lakes of Como and Lugano for the lake Maggiore, we find on the shores of the latter lake another emigrating district. This is towards the head of the Lago Maggiore, near to Locarno, where the inhabitants are chiefly house and ornamental painters or decorators. Leaving also the Lago Maggiore and approaching the Alps, not far from Domo d'Ossola, and immediately at the foot of Mount Simplon, there is another and numerous class of emigrants, who are also house-painters and white-washers, called by the Lombards and Piedmontese "*Sbianchini.*" These humble artists go to many parts of Italy and to Switzerland. They invariably leave their homes in spring and return at the approach of winter.

Another class of emigrants, the next in consequence, and perhaps superior in wealth to the Comaschi, come from the beautiful little lake of Orta, near the other end of the Lago Maggiore. These all leave home as hotel servants or keepers of little inns, from which humble condition the clever or the successful gradually raise themselves to the rank of keepers of hotels and to the acquisition of fortune. They settle in different parts of Lombardy and the rest of Upper Italy. They go to Germany, to Spain (in considerable numbers), and some of them come to England. Pagliano, the hotel keeper in Leicester Square, though himself from Piedmont, has generally some servants from this district, who contrive even in England to live upon almost nothing, and to save nearly all their wages and other gains. To the knowledge of the writer of this article, a few years ago, the "Fontana de Oro," and one or two more of the best hotels at Madrid, an hotel at Seville, one at Cadiz, and another and a very good one at Algesiras opposite Gibraltar, were kept by individuals from the Lago d'Orta and its neighbourhood. Averse to perpetual expatriation, and fond of their native spots as the rest of their countrymen, these people are continually returning home as soon as they have made a fortune, and these fortunes are in many cases very considerable. Here, therefore, as at Como, neat houses and elegant little villas are seen, added from time to time, on the shores and hills above the tranquil lake. The villages are numerous, well-peopled, and prosperous; a cheerful and social spirit prevails; and the retired *osti* or innkeepers, retaining their old habits, and being fond of crowded companies, nothing is more common than to find fifty or sixty individuals assembled in the evening at one house, playing at *tarrocco* and other games of cards, and enjoying festivity and music. Their season of greatest hilarity is the autumn—the time the Italians prefer for their *villeggiatura* or residence in the country; and at this season the lake of Orta has long been, like the famed abbey of Vallombrosa in the words of Ariosto,—

> "Ricca e bella, non men religiosa,
> E cortese a chiunque vi venia."
>
> Beauteous and rich, and not the less devout
> And courteous to every comer there.

Their courtesy and hospitality are indeed at the autumnal season remarkable, and extended to all visitors whether friends or strangers. It is pleasant to see these people in the evening of life enjoying what they have so hardly earned and struggled for. The whole secret of all these emigrants retiring with independence, while

the natives of the countries where they have been who exercised the same callings merely contrive to live, is to be found in their frugal, abstemious, and regular habits—in their faculty of sacrificing the present to the future—and in their laudable ambition of becoming the owners of a house and a piece of land in their own country—a prospect that is hardly ever from before their eyes.

There are a few other emigrant districts besides these described. A certain number of peasants emigrate from the Val d'Aosta, on the Piedmontese side of the Alps, exercising the same callings as the wanderers from the Apennines and the Savoyards, with whom they are often confounded. From the Italian portion of the Tyrol, also, some troops wander about every year selling their manufactures, which are *tappeti* or coverings for tables, but they seldom cross the Alps. The desire for travel is a great passion amongst the people whom we have noticed. The mountaineers of all that part of Italy which touches on, or is part of, the Alps, generally love a wandering life and are averse to service, though when they take to it they are excellent and most trustworthy domestics. The honesty, the orderly conduct, and civility (in its extended sense) of the Comaschi in particular are proverbial. These qualities strike the traveller or casual observer; but we have it from a gentleman who has not only been long resident on the lake of Como, but once employed in the Council of State of Milan, that for year after year there used to be scarcely an instance of a crime committed in those districts; and that the office of Judge seemed to be a sinecure among them.

GALILEO.

The 19th of February by some accounts, but according to the best authorities the 15th, is the anniversary of the birth of one of the greatest philosophers of modern times, the celebrated Galileo Galilei. He was born at Pisa, in 1564. His family, which, till the middle of the 14th century, had borne the name of Bonajuti, was ancient and noble, but not wealthy; and his father, Vincenzo Galilei, appears to have been a person of very superior talents and accomplishments. He is the author of several treatises upon music, which show him to have been master both of the practice and theory of that art. Galileo was the eldest of a family of six children, three sons and three daughters. His boyhood, like that of Newton, and of many other distinguished cultivators of mathematical and physical science, evinced the natural bent of his genius by various mechanical contrivances which he produced; and he also showed a strong predilection and decided talent both for music and painting. It was resolved, however, that he should be educated for the medical profession; and with that view he was, in 1581, entered at the university of his native town. He appears to have applied himself, for some time, to the study of medicine. We have an interesting evidence of the degree in which his mind was divided between this new pursuit and its original turn for mechanical observation and invention, in the history of his first great discovery, that of the isochronism (or equal-timedness, as it might be translated,) of the vibrations of the pendulum. The suspicion of this curious and most important fact was first suggested to Galileo while he was attending college, by the motions of a lamp swinging from the roof of the cathedral. It immediately occurred to him that here was an excellent means of ascertaining the rate of the pulse; and, accordingly, after he had verified the matter by experiment, this was the first, and for a long time the only, application which he made of his discovery. He contrived several little instruments for counting the pulse by the vibrations of a pendulum, which soon came into general use, under the name of *Pulsilogies*; and it was not till after many years that it was employed as a general measure of time. It was probably after this discovery that Galileo began the study of mathematics. From that instant he seemed to have found his true field. So fascinated was he with the beautiful truths of geometry, that his medical books henceforth remained unopened, or were only spread out over his Euclid to hide it from his father, who was at first so much grieved by his son's absorption in his new study, that he positively prohibited him from any longer indulging in it. After some time, however, seeing that his injunctions were insufficient to overcome the strong bias of nature, he yielded the point, and Galileo was permitted to take his own way. Having mastered Euclid, he now proceeded to read the Hydrostatics of Archimedes; after studying which he produced his first mathematical work, an Essay on the Hydrostatical Balance. His reputation soon spread itself abroad; and he was introduced to one of the ablest of the Italian mathematicians of that day, Guido Ubaldi, who, struck with his extraordinary knowledge and talents, recommended him to the good offices of his brother, the Cardinal del Monte; and by the latter he was made known to the then Grand Duke Ferdinand. The road to distinction was now open to him. In 1589 he was appointed to the office of Lecturer on Mathematics in the University of Pisa; and this situation he retained till 1592, when he was nominated by the Republic of Venice to be Professor of Mathematics for six years in their University of Padua. From the moment at which he received the first of these appointments, Galileo gave himself up entirely to science; and, although his salary at first was not large, and he was consequently, in order to eke out his income, obliged to devote a great part of his time to private teaching, in addition to that consumed by his public duties, his incessant activity enabled him to accomplish infinitely more than most other men would have been able to overtake in a life of uninterrupted leisure. The whole range of natural philosophy, as then existing, engaged his attention; and besides reading, observation, and experiment, the composition of numerous dissertations on his favourite subjects occupied his laborious days and nights. In 1598 he was re-appointed to his professorship with an increased salary; and in 1606 he was nominated for the third time, with an additional augmentation. By this time he was so popular as a lecturer, and was attended by such throngs of auditors, that it is said he was frequently obliged to adjourn from the largest hall in the university, which held a thousand persons, to the open air. Among the services which he had already rendered to science may be mentioned his contrivance of an instrument for finding proportional lines, similar to Gunter's scale, and his rediscovery of the thermometer, which seems to have been known to some of the ancient philosophers, but had long been entirely forgotten. But the year 1609 was the most momentous in the career of Galileo as an enlarger of the bounds of natural philosophy. It was in this year that he made his grand discovery of the telescope—having been induced to turn his attention to the effect of a combination of magnifying glasses, by a report which was brought to him, while on a visit at Venice, of a wonderful instrument constructed on some such principle, which had just been sent to Italy from Holland. In point of fact, it appears that a rude species of telescope had been previously fabricated in that country; but Galileo, who had never seen this contrivance, was undoubtedly the true and sole inventor of the instrument in that form in which alone it could be applied to any scientific use. The interest excited by this discovery transcended all that has ever been inspired by any of the other wonders of science. After having exhibited his new instrument for a few days, Galileo presented it to the Senate of Venice, who immediately re-elected him to his professorship for life, and doubled his salary, making it now one thousand florins. He then constructed another

telescope for himself, and with that proceeded to examine the heavens. He had not long directed it to this, the field which has ever since been its principal domain, before he was rewarded with a succession of brilliant discoveries. The four satellites, or attendant moons, of Jupiter, revealed themselves for the first time to the human eye. Other stars unseen before met him in every quarter of the heavens to which he turned. Saturn showed his singular encompassing ring. The moon unveiled her seas and her mountains. The sun himself discovered spots of dark lying in the midst of his brightness. All these wonders were announced to the world by Galileo in the successive numbers of a publication which he entitled the '*Nuncius Sidereus*, or Intelligence of the Heavens,' a newspaper undoubtedly unrivalled for extraordinary tidings by any other that has ever appeared. In 1610 he was induced to resign his professorship at Padua, on the invitation of the Grand Duke of Tuscany to accept of the appointment of his first mathematician and philosopher at Pisa. Soon after his removal thither Galileo appears to have for the first time ventured upon openly teaching the Copernican system of the world, of the truth of which he had been many years before convinced. This bold step drew down upon the great philosopher a cruel and disgraceful persecution which terminated only with his life. An outcry was raised by the ignorant bigotry of the time, on the ground that in maintaining the doctrine of the earth's motion round the sun he was contradicting the language of Scripture, where, it was said, the earth was constantly spoken of as at rest. The day is gone by when it would have been necessary to attempt any formal refutation of this absurd notion, founded as it is upon a total misapprehension of what the object of the Scriptures is, which are intended to teach men morality and religion only, not mathematics or astronomy, and which would not have been even intelligible to those to whom they were first addressed, unless their language in regard to this and various other matters had been accommodated to the then universally prevailing opinions. In Galileo's day, however, the Church of Rome had not learned to admit this very obvious consideration. In 1616 Galileo, having gone to Rome on learning the hostility which was gathering against him, was graciously received by the Pope, but was commanded to abstain in future from teaching the doctrines of Copernicus. For some years the matter was allowed to sleep, till in 1632 the philosopher published his celebrated Dialogue on the two Systems of the World, the Ptolemaic and the Copernican, in which he took but little pains to disguise his thorough conviction of the truth of the latter. The rage of his enemies, who had been so long nearly silent, now burst upon him in a terrific storm. The book was consigned to the Inquisition, before which formidable tribunal the author was forthwith summoned to appear. He arrived at Rome on the 14th of February, 1633. We have not space to relate the history of the process. It is doubtful whether or no Galileo was actually put to the torture, but it is certain that on the 21st of June he was found guilty of heresy, and condemned to abjuration and imprisonment. His actual confinement in the dungeons of the Holy Office lasted only a few days; and after some months he was allowed to return to his country seat at Arcetri, near Florence, with a prohibition, however, against quitting that retirement, or even admitting the visits of his friends. Galileo survived this treatment for several years, during which he continued the active pursuit of his philosophical studies, and even sent to the press another important work, his Dialogues on the Laws of Motion. The rigour of his confinement, too, was after some time much relaxed; and although he never again left Arcetri (except once for a few months), he was permitted to enjoy the society of his friends in his own house. But other misfortunes now crowded upon his old age. His health had long been bad, and his fits of illness were now more frequent and painful than ever. In 1639 he was struck with total blindness. A few years before the tie that bound him most strongly to life had been snapt by the death of his favourite daughter. Weighed down by these accumulated sorrows, on the 8th of January, 1642, the old man breathed his last at the advanced age of seventy-eight. For a full account of Galileo—of what he was and what he did—the reader ought to peruse his Life in the 'Library of Useful Knowledge,' from which the above rapid sketch has been abstracted. The subject of the philosopher and his times is there treated in ample detail, and illustrated with many disquisitions of the highest interest.

[Portrait of Galileo.]

Blarney.—In the highest part of Blarney Castle, in the county of Cork, is a stone usually pointed out to the visitor, which is said to have the power of imparting to the person who kisses it the unenviable privilege of hazarding, without a blush, that species of romantic assertion which many term falsehood. Hence the phrase of blarney, applied to such violations of accuracy in narration.—*Brewer's Beauties of Ireland.*

Excess in the Pursuit of Knowledge.—The principal end why we are to get knowledge here is to make use of it for the benefit of ourselves and others in this world; but if by gaining it we destroy our health, we labour for a thing that will be useless in our hands; and if by harassing our bodies (though with a design to render ourselves more useful), we deprive ourselves of the abilities and opportunities of doing that good we might have done with a meaner talent, which God thought sufficient for us, by having denied us the strength to improve it to that pitch, which men of stronger constitutions can attain to, we rob God of so much service, and our neighbour of all that help, which, in a state of health, with moderate knowledge, we might have been able to perform. He that sinks his vessel by overloading it, though it be with gold and silver and precious stones, will give his owner but an ill account of his voyage.—*Locke.*

*** The Office of the Society for the Diffusion of Useful Knowledge is at 59, Lincoln's Inn Fields.

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